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09/670,487	09/26/2000	Ivy Pei-Shan Hsu	M-8639 US	4335

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EXAMINER	
SALAD, ABDULLAHI ELMI	
ART UNIT	**PAPER NUMBER**
2157	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/670,487	HSU ET AL.	
	Examiner	Art Unit	
	Salad E. Abdullahi	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 70-103* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26 and 70-103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/5/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/5/2006 has been entered.

2. Applicant's arguments with respect to claims 1-26 and 70-102, have been fully considered but are not persuasive for the following reason(s).

As per claim 1, applicant submits that Logan fails to teach a load balancing switch that accesses a host server via a site switch.

Examiner respectfully disagrees because, Logan's distributed-server load-balancing system 100 comprises a load balancing switch (108) that accesses a host server (204) via a site switch (202) (see figs. 1 and 2). Thus, load balancing switch (108) corresponds applicant's load balancing switch as required in claim 1.

Furthermore, Logan teaches the distributed-server load-balancing system 100 of FIG. 1 uses a domain name server to respond to DNS-requests for VIP sites. it will respond with an appropriate domain name server response that matches the "best site" to respond to the subsequent content requests (see col. 5, lines 45-59).

As per claim 70, Applicant alleges Logan fails to discloses a round trip time between a host server site switch and a client machine, as recited in claim 70.

Examiner respectfully disagrees, because Logan discloses client 102 requests are handled by the distributed-server switch 106 and off-loaded from the other possible switches 108 and 110. The client requests are directed a list of the available servers according to currently measured response times and throughputs. Those servers that are the healthiest, more closely located, and showing good response times and throughputs should have more of the traffic directed to them. Thus, by directing client requests to host servers closely located to the client, thee response time measured includes the exchange of message between the client 102 and the host server.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-26 and 70-103 are rejected under 35 U.S.C. 102(e) as being anticipated by Logan et al., U.S. Patent No. 6,578,066[hereinafter Logan].

As per claim 1, Logan et al., disclose a method of providing load balancing among host servers (204,) in a computer using a load balancing switch (108) and plurality of site switches (202), comprising:

collecting at said load balance switch a first set of performance metrics (i.e. health check among the load balancing server switches) regarding said computer network ,

each said of host servers being accessed through at least one said site switch (see col. 5, lines 3-65 and col. 6, lines 14-41);

whenever said authoritative domain name server provides network addresses in response to a query regarding a domain name (see col. 11, 51 to col. 12, and col. 5, lines 45-59);

receiving, at said load balancing switch , a plurality of network addresses generated by an authoritative domain name system server in response to a query regarding a domain name, the authoritative domain name system server and the load balancing switch being separate network devices (see fig. 3 and col. 11, lines 51 to col. 12, line 5).

arranging at said load balancing switch said network addresses as an ordered list in accordance with said performance metrics (see the abstract and col. 3, lines 9-25 and col. 6, lines 14-41);

forwarding said ordered list of network addresses as a response to said query to an originator of said query (see col. 11, line 51 to col. 12, line 4).

In considering claim 2, Logan et al., discloses a distributed load balancing system further comprising:

collecting a second set of performance metrics (i.e. response time minimum delay, least cost) regarding said network, said second set of performance metrics reflecting access conditions (load, throughput or availability) to said host servers (204-212) at each of said site switches (202) (see fig. 2, and col. 6, line 14-41);

sending said second set of performance metrics from said site switches (204-212) to said load balancing switches (108, 106, 110)(see col. 6, line 14-41); and

including said second set of performance metrics with said first set of performance metrics [that is the load balancing switch including second performance metric i.e. response time received from site switches 202 with first performance metric i.e. health of the network or in other wards combing several performance metric to determine best site or server](see col. 5, lines line 46 to col. 6, line 3 and col. 11, line 50 to col. 6, line 4).

arranging, at said load balancing switch, said network addresses as an ordered list in accordance with at least some of said second set of performance metrics (see col. 3, lines 9-25 and col. 6, lines 14-41).

In considering claim 3, Logan et al., disclose a distributed load balancing system wherein said first set of performance metrics includes a health check sent from said load balancing switch to each of said site switches (see col. 5, line 60 to col. 6, line col. 6, line 3, and col. 6, lines 14-41).

In considering claim 4, Logan et al., disclose a distributed load balancing system wherein, when any of said host servers fails said health check, a network address of said failed host server is provided a lesser position in said ordered list (see col. 11, line 41 to col. 12, line 3).

In considering claim 5, Logan et al., discloses a distributed load balancing system, wherein said collection of said second set of performance metrics includes recording, at each site switch, a number of sessions(connections) connected to host servers having network addresses configured on said site switch (that is determining if host servers reach at there respective Maximum connection)(see col. 5, lines 38-45 and col. 9, lines 1-35).

In considering claim 6, Logan et al., discloses a distributed load balancing system wherein when said number of sessions (connection) at said site switch exceeds a predetermined percentage of that site switch's maximum capacity, a corresponding one of said network addresses is provided a lesser position in said ordered list [i.e. ordering the list of IP addresses for host server 210, 204, 206, and 208 in order of priority, the 900 msec response time of server 210 gets highest position] (see col. 6, lines 14-41 and col. 9, lines 5-35).

In considering claim 9, Logan et al., discloses a system wherein said arranging takes into consideration the geographical location of said originator of said query (see col. 10, lines 6-65).

In considering claim 10, Logan et al., discloses a system, wherein said collecting of said first set of performance metrics includes recording a time interval for each site switch

between said load balancing switch initiating said health check and said load balancing switch receiving a response from said site switch (see col. 5, line 3 to col. 6, lines 13).

In considering claim 11, Logan et al., discloses a system, wherein said arranging selects a network address of a least recently selected host server for placement at a higher position in said ordered list (i.e. host with 900 msec response time is the least selected host and is positioned highest on the list)(see col. 6, lines 14-41).

In considering claim 12, Logan et al., discloses a system, further comprising said load balancing switch limiting a valid time (TTL) for each network address in said ordered list to less than predetermined value (see col. 11, lines 9-13).

In considering claim 13, Logan et al., discloses a system, further comprising, when a connection request is received at a site switch for a connection to one of said host servers, said site switch redirecting said connection request to another one of said host servers (see col. 5, lines 38-45 and col. 10, line 66 to col. 11, line 9).

As per claim 14, Logan et al., disclose a system for load balancing among host servers (204) in a computer network, comprising:

an authoritative domain name server [the authoritative name server not shown explicitly on the figures is part of the distributed site 100, (see fig. 1, col. 3, line 39 to col. 4, line 36 and col. 5, lines 19-59), which describes the existence of a is a single authoritative

name serve for every sub-domain www.alteon.com represented by the system 100, also, as discussed above the Logan describes the switch sending the response from the authoritative domain name server back to the client indicates the authoritative name server is part of the distributed network (see col. 3, lines 9-25)];

load balancing switch (106) coupled to authoritative domain name server (the switch using an authoritative name server to resolve name resolutions resolution and sending the response from the authoritative domain name server back to the client indicates the authoritative name server is part of the distributed network and coupled to the authoritative domain name server] (see col. 3, lines 9-25 and col. 5, lines 46-59); and

(a) the authoritative domain name system server and the load balancing switch being separate network devices (see fig. 2 and col. 6, lines 51-59).

(b) capable of collecting a first set of performance metrics regarding said network [health and throughput] (see col. 5, line 60-65);

(c) capable of arranging a list of network addresses from said authoritative domain name server in accordance with first set performance metrics (see the abstract and col. 5, lines 3-65 and col. 6, lines 14-41);

the list of network devices being generated by the authoritative domain name system server in response to a query regarding a domain name(see col. 3, lines 9-25 and col. 6, lines 14-41); and

a plurality of site switches (202) coupling said host servers (204-212) to said network (see fig. 2 and col. 6, lines 14-36).

In considering claim 15, Logan et al., discloses a distributed load balancing system further comprising:

collecting a second set of performance metrics (i.e. response time minimum delay, least cost) regarding said network, said second set of performance metrics reflecting access conditions (load, throughput or availability) to said host servers (204) at each of said site switches (202) (see fig. 2, and col. 6, line 14-41);

sending said second set of performance metrics from said site switches (204) to said load balancing switches (108)(see col. 6, line 14-41); and

including said second set of performance metrics with said first set of performance metrics [that is the load balancing switch including second performance metric i.e. response time received from site switches 202 with first performance metric i.e. health of the network or in other wards combing several performance metric to determine best site or server](see col. 5, lines line 46 to col. 6, line 3 and col. 11, line 50 to col. 6, line 4).

In considering claim 16, Logan et al., disclose a distributed load balancing system wherein said first set of performance metrics includes a health check sent from said load balancing switch to each of said site switches (see col. 6, lines 14-41).

In considering claim 17, Logan et al., disclose a distributed load balancing system wherein, when any of said host servers fails said health check, a network address of

said failed host server is provided a lesser position in said ordered list (col. 7, lines 10-35 and col. 11, line 41 to col. 12, line 3).

In considering claim 18, Logan et al., discloses a distributed load balancing system, wherein said collection of said second set of performance metrics includes recording, at each site switch, a number of sessions(connections) connected to host servers having network addresses configured on said site switch (that is determining if host servers reach at there respective Maximum connection)(see col. 5, lines 38-45 and col. 9, lines 1-35).

In considering claim 19, Logan et al., discloses a distributed load balancing system wherein when said number of sessions (connection) at said site switch exceeds a predetermined percentage of that site switch's maximum capacity, a corresponding one of said network addresses is provided a lesser position in said ordered list [i.e. ordering the list of IP addresses for host server 210, 204, 206, and 208 in order of priority, the 900 msec response time of server 210 gets highest position] (see col. 6, lines 14-41 and col. 9, lines 5-35).

In considering claim 20, Logan et al., discloses a distributed load balancing system, wherein said collecting said second set of performance metrics includes recording, at each site switch, a round trip time indicative of elapse time (response time) for exchanging messages between each site switch and a client machine of said computer network (see col. 5, lines 3-59).

In considering claim 21, Logan et al., discloses a system, wherein said round trip time being an actual recorded time period between said site switch receiving a connection request from said client machine and said site switch receiving an acknowledgment of a connection from said client machine (response time includes the transmission time, the processing time, transmission time back to the originator), (see col. 5, lines 3-59 and col. 6, lines 14-41).

In considering claim 22, Logan et al., discloses a system wherein said arranging takes into consideration the geographical location of said originator of said query (see col. 10, lines 6-65).

In considering claim 23, Logan et al., discloses a system, wherein said collecting of said first set of performance metrics includes recording a time interval for each site switch between said load balancing switch initiating said health check and said load balancing switch receiving a response from said site switch (see col. 5, line 3 to col. 6, lines 13).

In considering claim 24, Logan et al., discloses a system, wherein said arranging selects a network address of a least recently selected host server for placement at a higher position in said ordered list (i.e. host with 900 msec response time is the least selected host and is positioned highest on the list)(see col. 6, lines 14-41).

In considering claim 25, Logan et al., discloses a system, further comprising said load balancing switch limiting a valid time (TTL) for each network address in said ordered list to less than predetermined value (see col. 11, lines 9-13).

In considering claim 26, Logan et al., discloses a system, further comprising, when a connection request is received at a site switch for a connection to one of said host servers, said site switch redirecting said connection request to another one of said host servers (see col. 5, lines 38-45 and col. 10, line 66 to col. 11, line 9).

As per claims 70 and 91, Logan discloses a method load balancing among host servers a data network, the method comprising:
storing, a load balancing switch of the data network, round trip time data, wherein the round trip time data a time for exchanging at least one message between a first host server site switch of the data network and a first client machine (102) of the data network (see col. 5, lines 3-18 and col. 6, lines 30-41); and
ordering, in the load balancing switch, a plurality of network addresses, the network addresses being responsive to a query regarding a domain name, wherein the load balancing switch is capable of ordering the plurality of network addresses based, least in part, on the round trip time data (see tables I and II col. 9, lines 12-35).

As per claims 71-77, Logan discloses the method of claim 70, further comprising:

creating a table, in the load balancing switch, using the round trip time data, wherein the table is indexed by network neighborhood and sending a health check message to each of the plurality of network addresses from the load balancing switch (see tables I and II

As per claims 78-84, Logan discloses the method of claim 70, wherein the first host server site switch is one of a plurality of host server site switches of the data network, and the first client machine is one of a plurality of client machines of the data network, and further comprising:

storing, in the load balancing switch, round trip time data received from each of the plurality of host server site switches, wherein each said round trip time data is a time for exchanging at least one message between a respective one of the host server site switches and a respective one of the plurality of client machines network (see fig. 2 and col. 6, lines 30-41).

As per claims 86 and 96, Logan discloses A method of load balancing among host servers of a data network, the method comprising:

receiving, at a load balancing switch of the data network, a query regarding a domain name (see col. 5, lines 46-59); and

selecting, from a plurality of network addresses responsive to the request, a best network address based, at least in part, on which of the plurality of network addresses has been least recently selected by the load balancing switch as a best network

address in response to previous queries (i.e., server best response time) (see col. 5, lines 46-59 and tables I-IV).

As per claims 87-90, Logan discloses the method of claim 86, further comprising: storing, at the load balancing switch, round trip time data, wherein each said round trip time data is a time for exchanging at least one message between a respective one of a plurality of host server site switches of the data network and a respective one a plurality client machines of the data network (see fig. 2n, and col. 6, lines 14-41).

As per claims 92-95, Logan discloses the load balancing switch of claim 91, further comprising:
means for ordering the plurality of network addresses based, at least in part, on which of the network addresses has been least recently selected as a best network address response to previous queries(see tables I and II col. 9, lines 12-35).

As per claim 97-99, Logan discloses the load balancing switch of claim 96, further comprising:
a means for ordering the plurality of network addresses based, at least in part, on a session capacity of a plurality of host server site switches, each said host server site switch being coupled between the load balancing switch and at least one of the host servers(see tables I and II col. 9, lines 12-35).
As per claim 100, Logan discloses a data networking method comprising:

storing, in a host server site switch (202) through which a plurality of host servers (204-212)of a data network are accessed, round trip time data, the round trip time data being a time for exchanging at least one message between the host server site switch and a client machine of the data network (see fig. 2 and col. 6, lines 30-41); and communicating the round trip time data to a load balancing switch the data network. (see col. 6, lines 51-59).

As per claim 101, Logan discloses the data networking method of claim 100, further comprising communicating a number of sessions of the host server site switch to the load balancing switch (see col. 6, lines 14-30).

As per claim 1, Logan discloses a method of providing load balancing among host servers(204) in a computer network using a load balancing switch (108)and a plurality of site switches (202), each site switch coupled to one or more host servers, the method comprising:

receiving, at the load balancing server (018) from at least one site switch (202)from the plurality of site switches, metrics information regarding one or more host servers coupled to the at least one site switch(see col. 5, lines 3-65 and col. 6, lines 14-41);

receiving, at the load balancing switch from a domain name system server, a plurality of network addresses generated by the domain name system server in response to a query regarding a domain name, wherein the domain name system

server is an authoritative domain name system server for multiple domains(see fig. 3 and col. 11, lines 51 to col. 12, line 5);

arranging, at the load balancing switch, the plurality of network addresses as an ordered list based upon the metrics information(see the abstract and col. 3, lines 9-25 and col. 6, lines 14-41); and

forwarding the ordered list of network addresses as a response to said query(see col. 11, line 51 to col. 12, line 4).

CONCLUSION

5. The prior art made of record and relied upon is considered pertinent to the applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salad E Abdullahi whose telephone number is 571-272-4009. The examiner can normally be reached on 8:30 - 5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300.**

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

As
4/26/2006

ABDULLAH SALAD
PRIMARY EXAMINER